CONTROLLER #50 - VAV AHU "EF 1-4/SHELTER-IN-PLACE EME" SHUTDOWN SWITCH - LOCATED IN MEZZANINE MEC.1 ROOM.

POINT INFO	TYPE	NOTES/COMMENTS
PREHEAT TEMP	AI	REQUIRES NEW SENSOR. USE EXISTING WIRING
RETURN AIR TEMP	AI	REQUIRES NEW SENSOR. USE EXISTING WIRING
SUPPLY AIR TEMP	AI	REQUIRES NEW SENSOR. USE EXISTING WIRING
MIXED AIR TEMP	AI	REQUIRES NEW AVERAGING SENSOR. USE EXISTING WIRING
SUPPLY STATIC PRESSURE	AI	4-20 mA = 0-2.5" WC. USE EXISTING DEVICE, WIRING AND CONDUIT
PREHEAT COIL HTG VALVE	AO	ACTUATOR RANGE=?USE EXISTING DEVICE, WIRING AND CONDUIT
MIXED AIR DAMPERS	AO	ACTUATOR RANGE=?USE EXISTING DEVICE, WIRING AND CONDUIT
FREQUENCY DRIVE CONTROL	AO	4-20 mA. USE EXISTING DEVICE, WIRING AND CONDUIT
AHU FAN STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
RETURN AIR SMOKE DETECTOR	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
SUPPLY AIR SMOKE DETECTOR	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
FREEZE STAT	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 1 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 2 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 3 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 4 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
EMER SHUTDOWN SWITCH	BI	THIS IS THE SINGLE POINT SHELTER-IN-PLACE EMERGENCY SHUTDOWN SWITCH. USE EXISTING DEVICE, WIRING AND CONDUIT
HIGH DUCT STATIC SWITCH	BI	SET AT 3" WC. USE EXISTING DEVICE, WIRING AND CONDUIT
AHU FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
DX COOLING STAGE 1	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
DX COOLING STAGE 2	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 1 START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 2 START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 3 START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 4 START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	25	

CONTROLLER #51 - VAV INTEGRATOR - 16 VAV'S HOOKED UP TO AN INTEGRATOR CONTROLLER. THIS WILL REQUIRE 16 NEW VAV CONTROLLERS FOR THE 16 VAV BOXES. LOCATED IN MEZZANINE MECH ROOM.

POINT INFO	TYPE	NOTES/COMMENTS
VAV 1		
VAV 1 RM 101 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 101 ENTRY LOBBY TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 1 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 1 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 1 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 2		
VAV 2 RM 104 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 104 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 2 DAMPER CONTROL	AO	DAMPER ACTUATOR

VAV 2 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 2 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 3		
VAV 3 RM 105 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 105 RECEPTIONIST TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 3 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 3 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 3 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 4		
VAV 4 RM 107 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 107 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 4 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 4 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 4 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 5		
VAV 5 RM 108 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 108 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 5 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 5 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 5 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 6		
VAV 6 RM 109 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 109 ALARM ROOM TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 6 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 6 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 6 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 7		
VAV 7 RM 120 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 120 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 7 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 7 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 7 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 8		
VAV 8 RM 115 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 115 CHIEFS OFFICE TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 8 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 8 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT

VAV 8 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 9		
VAV 9 RM 116 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 116 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 9 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 9 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 9 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 10		
VAV 10 RM 125 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 125 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 10 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 10 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 10 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 11		
VAV 11 RM 127 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 127 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 11 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 11 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 11 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 12		
VAV 12 RM 129 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 129 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 12 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 12 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 12 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 13		
VAV 13 RM ?? FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 1?? TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 13 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 13 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 13 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 14		
VAV 14 RM 139 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 139 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 14 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 14 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 14 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT

VAV 15		
VAV 15 RM 149 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 149 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 15 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 15 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 15 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 16		
VAV 16 RM 143 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 143 TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
VAV 16 DAMPER CONTROL	AO	DAMPER ACTUATOR
VAV 16 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
VAV 16 REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	**80**	

CONTROLLER #52 - SNOW MELT/RM 168 FAN COIL 3A

POINT INFO	TYPE	NOTES/COMMENTS
RM 168 AGENT STORAGE TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING.
SNOW MELT RETURN WTR TMP	AI	REQUIRES NEW SENSOR. USE EXISTING WIRING
SNOW MELT SUPPLY WTR TMP	AI	REQUIRES NEW SENSOR. USE EXISTING WIRING
SNOW MELT HEAT EXCH VLV	AO	N.O. RANGE=? USE EXISTING DEVICE, WIRING AND CONDUIT
SNOW MELT PUMP STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
SNOW MELT FLOW SWITCH	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
SNOW MELT PUMP START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 3A COOLING VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 3A HEATING VALVE	BO	2 POSITION N.O. USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 3A FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	**10**	

CONTROLLER #53 - EF 5/RM 169 FAN COIL 2A/RM 170 FAN COIL 5A

POINT INFO	TYPE	NOTES/COMMENTS
RM 169 FIRE EXTINGUISHER TMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING.
RM 170 SCBA MAINT. TEMP	AI	INSTALL NEW WALL SENSOR. SETPOINT CONTROL NOT REQUIRED. USE EXISTING WIRING.
EXHAUST FAN 5 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 5 STR/STP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 2A COOLING VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 2A HEATING VALVE	BO	2 POSITION N.O. USE EXISTING DEVICE, WIRING AND CONDUIT
RM 169 FC 2A FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 5A COOLING VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 5A HEATING VALVE	BO	2 POSITION N.O. USE EXISTING DEVICE, WIRING AND CONDUIT
RM 170 FC 5A FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	**10**	

CONTROLLER #54 - EF 6/RM 167 FAN COIL 4A/RM 166 FAN COIL 1A

POINT INFO	TYPE	NOTES/COMMENTS
RM 167 TOOL ROOM TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING.

RM 166 MAINT. OFFICE TEMP	AI	INSTALL NEW WALL SENSOR SETPOINT CONTROL NOT REQUIRED. USE EXISTING \ .ING.
EXHAUST FAN 6 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 6 STR/STP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 1A COOLING VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 1A HEATING VALVE	BO	2 POSITION N.O. USE EXISTING DEVICE, WIRING AND CONDUIT
RM 166 FC 1A FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 4A COOLING VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
FAN COIL 4A HEATING VALVE	BO	2 POSITION N.O. USE EXISTING DEVICE, WIRING AND CONDUIT
RM 167 FC 4A FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	**10**	

CONTROLLER #55 - UH1, 2, 3 APPARATUS RM 150(ENG BAY)/SOUTH DOORS STATUS

POINT INFO	TYPE	NOTES/COMMENTS
RM 150 NORTHEAST TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING.
RM 150 NORTHWEST TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING.
RM 150 SOUTHEAST TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING.
RM 150 SOUTHWEST TEMP	AI	INSTALL NEW WALL SENSOR. USE EXISTING WIRING.
SOUTH BAY DOORS STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 1 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 2 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 3 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 1 VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 2 VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 3 VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER FANS 1-6 STR/STP	BO	STARTS ALL 6 UNIT HEATERS. USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	**12**	

CONTROLLER #56 - EF 7/UH 4, 5, 6 APPARATUS ROOM 150(ENG BAY)N. DOORS STATUS

POINT INFO	TYPE	NOTES/COMMENTS
CO DETECTOR #1	AI	REPLACE EXISTING CO DETECTOR WITH NEW NO_2 LEVEL MONITORING SENSOR. USE EXISTING WIRING.
CO DETECTOR #2	AI	REPLACE EXISTING CO DETECTOR WITH NEW NO_2 LEVEL MONITORING SENSOR. USE EXISTING WIRING.
EXHAUST FAN 7 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
EMERGENCY MANUAL SWITCH	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
NORTH BAY DOORS STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 4 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 5 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 6 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
CO ALARM HORN	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 7 STR/STP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 4 VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 5 VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
UNIT HEATER 6 VALVE	BO	2 POSITION N.C. USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	**13**	

ADDITIONAL REQUIREMENTS - HARDWARE

POINT INFO	TYPE	NOTES/COMMENTS
VAV1 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV2 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV3 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV4 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV5 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV6 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR

VAV7 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV8 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV9 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV11 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV12 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV13 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV14 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV15 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
VAV16 DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR
FC 1A DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR. CONTROLLER #54
FC 2A DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR. CONTROLLER #53
FC 3A DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR. CONTROLLER #52
FC 4A DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR. CONTROLLER #54
FC 5A DISCHARGE AIR SENSOR	AI	INSTALL NEW DISCHARGE AIR SENSOR. CONTROLLER #53
REPLACE CO HORN WITH STATUS LIGHT (WEST WALL APPARATUS BAY)	BO	REMOVE THE CO HIGH ALARM HORN AND REPLACE WITH A 1 INCH STATUS LIGHT. HORN IS LOCATED ON THE WALL BELOW THE CO MONITOR.
REPLACE CO HORN WITH STATUS LIGHT (EAST WALL APPARATUS BAY)	BO	REMOVE THE CO HIGH ALARM HORN AND REPLACE WITH A 1 INCH STATUS LIGHT. HORN IS LOCATED ON THE WALL BELOW THE CO MONITOR.
FAN COIL 1 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 2 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 3 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 4 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 5 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 6 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 7 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 8 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 9 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 10 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 11 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 12 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 13 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 14 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 15 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 16 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 17 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 18 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 19 FAN STATUS	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 1A FAN STATUS (RM 166)	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 2A FAN STATUS (RM 169)	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 3A FAN STATUS (RM 168)	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 4A FAN STATUS (RM 167)	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
FAN COIL 5A FAN STATUS (RM 170)	BI	INSTALL NEW CURRENT SENSING RELAY FOR FAN STATUS
TOTAL	**46**	

ADDITIONAL REQUIREMENTS - METERS

POINT INFO	TYPE	NOTES/COMMENTS
GAS METER	BI	PROVIDE PULSE METER HEAD FOR EXISTING GAS METER. PULSE HEAD WILL BE WIRED INTO NEW CONTROLLER AND WILL PROVIDE CURRENT AND TOTALIZED GAS CONSUMPTION.
TOTAL	**1**	

POINT COUNT 1ST 20	**142**
POINT COUNT 21 & UP	**201**

Note 1 - FANCOILS

Many of the fancoils are located above the ceiling or in inaccessible areas. Wall temperature sensors and/or thermostats will have a jack for access to the controller program. This shall provide full access to the controller using a laptop or other portable field device. Field service technicians shall have the ability to access all points and programming in the controller through the wall sensor access port.

Note 2 - VAV WALL SENSORS

All VAV wall temperature sensors and/or thermostats shall have the ability to access the VAV controller parameters either by using the buttons on the sensor itself or by plugging in a portable field service device for access using an available plug in port on the sensor.

Note 3 - WALL SENSORS/SETPOINT & OVERRIDE CONTROL

Install wall sensors with setpoint and override control in occupied areas unless specifically noted to not install this type sensor. Typical wall sensors for hangars, warehouse areas and mechanical rooms will be industrial grade plate style sensors. Most of the buildings will not use the setpoint or override functions at this time but may in the future as building requirements change. Most buildings will be programmed so that the area setpoint is set in software and not set by occupants. Final determination as to which buildings have occupant setpoint control will be made during the software programming. The setpoints will have high and low limits in buildings where occupant setpoint control is allowed. See specific building requirements for additional information.

Note 4 - WALL SENSORS WITH SETPOINT CONTROL

We may allow occupant set point control at this building. Setpoints limits will be determined during programming.

**NOTE - SINGLE POINT SHELTER-IN-PLACE (SIP) SWITCH

All air handlers, exhaust fans, fan coils, fan-powered VAV's, unit heaters and cabinet heaters will be programmed to immediately shut down when the shelter-in-place switch is activated. The shelter-in-place switch is located in the main fire station (Bldg. 0003) control room. Essentially, when the shelter-in-place switch is activated all mechanical equipment with a control output and that moves air will be shutdown. When the switch is placed back into the normal position all of the equipment shutdown will restart with delays. The delays are needed to prevent a large load on the utility systems.

SEQUENCE OF OPERATIONS

AIR HANDLER 1 - FEEDS VAV SYSTEM

24 Hour Occupied Mode - The AHU fan will run continuously. The supply fan VFD will modulate to maintain a 1.25 "WC (adjustable) setpoint. The DDC system will modulate the mixed/relief air dampers and the heating valve in sequence to maintain the supply/mixed 60 °F (adjustable) air setpoint. The mixed air dampers minimum position will be 20% of damper range. When the mixed air temp decreases to 50 °F (adjustable) the dampers will modulate to the closed position to maintain the low limit. When the outside air temp increases to 73 °F (adjustable) the dampers will modulate to the minimum position.

AHU DX Control - The DX will be staged on to maintain the return air temperature at a 70 °F (adjustable) setpoint. When the return air increases to 70 °F (adjustable) start DX stage 1. Start DX stage 2 when the return temp increases to 72 °F (adjustable). Stop DX stage 2 when the return temp decreases to 71 °F (adjustable). Stop DX stage 1 when the return temp decreases to 69 °F (adjustable). When the outside air temp decreases to 52 °F (adjustable) DX stage 1 will be locked out. Above 55 °F (adjustable) DX stage 1 will be allowed to operate normally. When the outside air temp decreases to 62 °F (adjustable) DX stage 2 will be locked out. Above 65 °F (adjustable) DX stage 2 will be allowed to operate normally.

Overrides - Stop the air handler and close the outside and relief dampers when either smoke detector is in alarm. Stop the air handler and DX stages, close the outside and relief dampers and open the heating valve if the freezestat is in alarm. When the outside air increases to 55 °F (adjustable) close the heating valve.

Fan Interlocks - When the air handler fan is off close the outside and relief air dampers and the heating valve, stop the DX stages.

VAV TERMINAL UNITS

24 Hour Occupied Mode - VAV's with R[illegible]at

On a call for full cooling at temperature sensor the VAV terminal unit controller shall p[illegible]ion the VAV box damper to deliver maximum scheduled air quantity and the heating control valve will be closed to the coil. As the call for cooling decreases controller shall modulate box damper closed to minimum scheduled air quantity. On a call for heating, after the damper is at minimum position, the heating control valve shall modulate to flow through coil. The reverse shall occur on a decrease in call for heating.

EXHAUST FANS 1-4 - The exhaust fans will run continuously.

AIR HANDLER 1/2 - FEEDS LOCKER ROOM

24 Hour Occupied Mode - The AHU fans will run continuously. The 2-position outside air damper will be open when the air handler is running. The DDC system will modulate the heating/cooling valves to maintain the 72 °F (adjustable) locker room setpoint. The supply air will have a 55 °F (adjustable) low limit. The DDC system will modulate the heat recovery valve to maintain a 32 °F (adjustable) AHU 2 exhaust air temperature.

Hot Water Coil Pump Control - When the outside air temp decreases to 50 °F (adjustable) start the hot water pump. When the outside air temp increases to 55 °F (adjustable) stop the hot water pump.

Heat Recovery Pump Control - When the outside air temp decreases to 65 °F (adjustable) start the pump. When the outside air temp increases to 70 °F (adjustable) stop the pump.

Overrides - Close the outside air damper and open the heating valve if the freezestat is in alarm.

Fan Interlocks - When the air handler fan is off close the outside air damper.

FAN COIL 1-18 CONTROL-PHASE 1 BUNKROOMS AND OFFICES - The fan will run continuously. The DDC system will modulate the heating and cooling valves to maintain the user selectable room setpoint. The supply air will have a 50 °F

FAN COIL 19 ROOM 134 CONTROL - The DDC system will modulate the heating and cooling valves to maintain the user selectable room setpoint. The supply air will have a 50 °F (adjustable) low limit.

FAN COIL 20 ROOM 140 CONTROL - The DDC system will modulate the heating and cooling valves to maintain the user selectable room setpoint. The supply air will have a 50 °F (adjustable) low limit.

FAN COIL 21 & 22 ROOM 140 CONTROL - The DDC system will modulate the heating and cooling valves to maintain the user selectable room setpoint. Use setpoint and room temp from Fan Coil 20 for the process variable. The supply air will have a 50 °F (adjustable) low limit.

FAN COIL 1 (FCU-1) ROOM 151 CONTROL - The fan will operate continuosly in the occupied mode. The occupied mode heating setpoint is 70 °F (adjustable). The cooling setpoint is the heating setpoint plus 5 °F (adjustable). The heating valve will open when the space temps drops to the heating setpoint and close when the space temps rises to 2 °F (adjustable) above setpoint. The cooling valve will open when the space temps increases to the cooling setpoint and close when the space temps drops to 2 °F (adjustable) below setpoint. In the unoccupied mode the fan will start and the heating valve open when the space temp drops to 55 °F (adjustable) and remain on until the temperature rises to 60 °F (adjustable).

FAN COIL 2 (FCU-2) ROOM 154 CONTROL - The fan will operate continuously. The heating setpoint is 72 °F (adjustable). The cooling setpoint is the heating setpoint plus 5 °F (adjustable). The heating valve will open when the space temps drops to the heating setpoint and close when the space temps rises to 2 °F (adjustable) above setpoint. The cooling valve will open when the space temps increases to the cooling setpoint and close when the space temps drops to 2 °F (adjustable) below setpoint.

FAN COIL 3 (FCU-3) ROOM 153 CONTROL - The fan will operate continuously. The heating setpoint is 60 °F (adjustable). The cooling setpoint is the heating setpoint plus 15 °F (adjustable). The heating valve will open when the space temps drops to the heating setpoint and close when the space temps rises to 2 °F (adjustable) above setpoint. The cooling valve will open when the space temps increases to the cooling setpoint and close when the space temps drops to 2 °F (adjustable) below setpoint.

FAN COIL 4 (FCU-2) ROOM 152 CONTROL - The fan will operate continuosly in the occupied mode. The heating setpoint is 65 °F (adjustable). The cooling setpoint is the heating setpoint plus 10 °F (adjustable), the heating valve will open when the space temps drops to the heating setpoint and close when the space temps rises to 2 °F (adjustable) above setpoint. The cooling valve will open when the space temps increases to the cooling setpoint and close when the space temps drops to 2 °F (adjustable) below setpoint. In the unoccupied mode the fan will start and the heating valve open when the space temp drops to 55 °F (adjustable) and remain on until the temperature rises to 60 °F (adjustable).

FAN COIL 5 (FCU-5) ROOM 155 CONTROL - The fan will operate continuously. The heating setpoint is 72 °F (adjustable). The cooling setpoint is the heating setpoint plus 5 °F (adjustable). The heating valve will open when the space temps drops to the heating setpoint and close when the space temps rises to 2 °F (adjustable) above setpoint. The cooling valve will open when the space temps increases to the cooling setpoint and close when the space temps drops to 2 °F (adjustable) below setpoint.

SNOW MELT SYSTEM CONTROL (CONTROLLER #52) - When the outside air temp increases to 40 °F (adjustable) stop the snow melt pump and close the valve. When the outside air temp decreases to 35 °F (adjustable) start the pump and enable the valve to operate normally. The DDC system will modulate the valve to maintain the snow melt supply temp at 115 °F (adjustable).

EXHAUST FAN 5 - The fan will run continuously.

EXHAUST FAN 6 - The fan will run continuously during the occupied mode which is the same as fan coil 1 & 4.

UNIT HEATER 1-6 (ROOM 150 - APPARATUS BAY) - The minimum temperature of the 4 temp sensors in the engine bay will be used as the process variable. When the minimum temp drops to 68 °F (adjustable) start all 6 unit heaters and open the valves. When the minimum temp increases to 70 °F (adjustable) stop the unit heaters and close the valves. The unit heaters will stop and the valves close anytime that exhaust fan 7 is running.

EXHAUST FAN 7 (LARGE FAN FOR APPARATUS BAY) - The exhaust fan will start and run for a minimum of 10 minutes (adjustable) if either the north doors or south doors are open or if the emergency switch is pushed. The fan will start if the minimum value of the two NO_2 monitors increases to 5 ppm (adjustable) and stay running until the the reading drops to 3 ppm (adjustable).

HIGH NO_2 ALARM STATUS LIGHTS - Turn on the NO_2 high alarm status lights whenever the NO_2 monitoring has started exhaust fan 7 due to a high NO_2 condition.

HONEYWELL HYDRONIC BOILER - The boiler will be enabled to operate when a hot water pump is running. The boiler setpoint is set by Honeywell. If the boiler goes into alarm, after a 60 second delay, a boiler alarm message will be sent to the appropriate pagers via a commercial paging system. This will require the ability to send the same alpha-numeric alarm message to multiple pagers. If the boiler is enabled and the hot water supply temp drops to 110 °F (adjustable) or rises to 200 °F (adjustable) and remains there for 30 minutes then an boiler/hot water supply alarm will be sent to the paging system. If at any time during the delay the hot water supply temperature returns to normal then the alarm condition will be terminated.

HEATING WATER SYSTEM - When the outside air temp increases to 60 °F (adjustable) stop the hot water pumps. When the outside air temp decreases to 58 °F (adjustable) start the lead hot water pump. The lead hot water pump will be changed weekly based upon runtime. When the runtime lead pump changeover is made, both pumps shall run for 30 seconds (adjustable) before the lag pump is stopped. If a pump is commanded to run and the status switch indicates no flow after a 30 second delay (adjustable) a pump failure alarm will be generated and the lag pump will be given a start command.

CHILLED WATER SYSTEM - This chiller is required to run even during cold weather. When the outside air temp decreases to 25 °F (adjustable) stop the chilled water pump. When the outside air temp increases to 27 °F (adjustable) start the chilled water pump. Start the chiller when the chilled water supply temp increases to 42 °F (adjustable) and stop the chiller when the chilled water supply temp decrease to 40 °F (adjustable). The chiller will be stopped when the chilled water pump is not running.

MECH ROOM UNIT HEATER - The unit heater will cycle on and off to maintain the mech room temperature at 60 °F (adjustable) with a 3 °F (adjustable) deadband.

BLDG. 0610 BASE THEATER

BLDG. TOTAL POINTS	19

TOTAL EXISTING POINTS	18
TOTAL NEW POINTS	1

All controllers are located in the same enclosure in the basement mechanical room in the rear of the building. The AHU, HW converter, HW pumps and steam boiler are located in the basement mechanical room.

All pneumatic control and actuators will be converted to electronic at this building. See point notes/comments for additional information.

CONTROLLER #1 - AHU/HW CONVERTOR/HW PMPS

POINT INFO	TYPE	NOTES/COMMENTS
MIXED TEMP	AI	REQUIRES NEW AVERAGING SENSOR. USE EXISTING WIRING
RETURN TEMP	AI	REQUIRES NEW SENSOR. USE EXISTING WIRING
SUPPLY TEMP	AI	REQUIRES NEW SENSOR. USE EXISTING WIRING
HW SUPPLY TEMP	AI	REQUIRES NEW SENSOR. USE EXISTING WIRING
MIXED AIR DAMPERS	AO	OUTSIDE & RETURN DAMPERS. ONE OUTPUT TO 2 ACTUATORS. INSTALL NEW 2-10 VDC ELECTRONIC ACTUATORS ON EXISTING DAMPERS. WILL REQUIRE NEW WIRING AND CONDUIT FROM CONTROLLER TO ACTUATORS.
AHU HEAT VALVE	AO	N.O. VALVE. INSTALL NEW 2-10 VDC ELECTRONIC ACTUATOR ON EXISTING VALVE. WILL REQUIRE NEW WIRING AND CONDUIT FROM CONTROLLER TO VALVE.
HW CONVERTOR VALVE	AO	N.C. VALVE. INSTALL NEW 2-10 VDC ELECTRONIC ACTUATOR ON EXISTING VALVE. WILL REQUIRE NEW WIRING AND CONDUIT FROM CONTROLLER TO VALVE.
AHU FAN STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
HWP1 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
HWP2 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
DX LIQUID LINE SOLENOID	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
HWP1 STR/STP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
HWP2 STR/STP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
AHU FAN STR/STP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	14	

CONTROLLER #2 - STEAM BOILER (HONEYWELL - 15 PSI)

POINT INFO	TYPE	NOTES/COMMENTS
STEAM PRESSURE	AI	4-20 mA = 0-100 PSI
OSA TEMP	AI	REQUIRES NEW SENSOR. USE EXISTING WIRING
BOILER ALARM	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
BOILER ENABLE	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	4	

ADDITIONAL REQUIREMENTS - METERS

POINT INFO	TYPE	NOTES/COMMENTS
GAS METER - Schlumberger Model 1.5M rotary	BI	PROVIDE PULSE METER HEAD FOR EXISTING GAS METER. PULSE HEAD WILL BE WIRED INTO NEW CONTROLLER AND WILL PROVIDE CURRENT AND TOTALIZED GAS CONSUMPTION.
TOTAL	1	

**NOTE - SINGLE POINT SHELTER-IN-PLACE (SIP) SWITCH

The air handler will be programmed to immediately shut down when the shelter-in-place switch is activated. The shelter-in-place switch is located in the main fire station (Bldg. 0003) control room. When the switch is placed back into the normal position the air handler will restart.

SEQUENCE OF OPERATIONS

HONEYWELL BOILER - The boiler will be enabled to operate at all times. After a 60 second delay a boiler alarm message will be sent to the appropriate pagers via a commercial paging system. This will require the ability to send the same alpha-numeric alarm message to multiple pagers. If the boiler steam pressure drops to 1 psi and remains there for 8 minutes then a steam pressure alarm will be sent to the paging system. If at any time during the delay the boiler pressure rises above 2 psi then the alarm condition will be terminated.

HEATING WATER SYSTEM - When the outside air temp increases to 62 °F (adjustable) stop the hot water pumps. When the outside air temp decreases to 60 °F (adjustable) start the lead hot water pump. The lead hot water pump will be changed weekly based upon runtime. When the runtime lead pump changeover is made, both pumps shall run for 30 seconds (adjustable) before the lag pump is stopped. If a pump is commanded to run and the status switch indicates no flow after a 30 second delay (adjustable) a pump failure alarm will be generated and the lag pump will be given a start command.

The steam to hot water converter control valve will modulate to provide building hot water supply using the following reset schedule: 10°F (adjustable) outside air temp = 180 °F (adjustable) hot water setpoint, 60 °F (adjustable) outside air temp = 60 °F (adjustable) hot water setpoint. If both hot water pumps are not running close the valve.

AIR HANDLER - The air handler will operate on a schedule - typically two days a week. The other occupied times are scheduled as required.

Occupied Mode - The fan will run continuously during the occupied mode. There is no zone sensor - the air handler is controlled to the return air sensor temperature. The DDC system will modulate the mixed air damper to maintain the following reset schedule: the mixed air will be set at 55 °F (adjustable) when the return air is 74 °F (adjustable) and set at 70 °F (adjustable) when the return air is 68 °F (adjustable). When the outside air increases to 73 °F (adjustable) the outside air damper will be set at the minimum position which is 20% (adjustable) of the actuator range. There is no minimum position for normal operations - the damper will be allowed to close to maintain the mixed air reset.

Cooling Control - The DDC system will energize the cooling liquid line solenoid when the return air temp increases to 74 °F (adjustable) and de-energize the solenoid when the return temp decreases to 73 °F (adjustable) The cooling will be enabled to operate normally when the outside air temp is greater than 65 °F (adjustable) and locked out when the outside air temp is less than 63 °F (adjustable).

Heating Valve Control - The DDC system will modulate the heating valve to maintain the return air temperature at 68 °F (adjustable)

Fan Interlocks - When the air handler fan is off stop the cooling and close the outside air damper and heating valve.

Unoccupied Mode - During the unoccupied mode the AHU will be off, the outside air damper will be closed and the return damper will be in the full recirculation mode. There will be no night setback mode for this air handler. It does not work well since the return air temp is the process variable.

The AHU will have an Opstart/Morning Warmup mode. During the Morning Warmup mode the dampers will be in full recirculation position.

BLDG. 2005 SQUAD OPS #1

BLDG. TOTAL POINTS	463

TOTAL EXISTING POINTS	387
TOTAL NEW POINTS	76

Controllers 1 - 4 are located in the ground floor mechanical room. Controllers 33 & 34 are located in the 2nd floor mechanical room. All other controllers are located on the respective VAV's.

The VAV and room numbers on the prints do not match the numbers in the programming. This will need to be rectified when the new controls programming is accomplished.

All pneumatic control and actuators will be converted to electronic at this building. See point notes/comments for additional information.

The existing power meter will be replaced with a BACnet meter. See controller 4 notes/comments for additional information.

CONTROLLER #1 - AIR HANDLING UNIT 1 - FIRST FLOOR

POINT INFO	TYPE	NOTES/COMMENTS
MIXED AIR TEMP	AI	INSTALL NEW AVERAGING SENSOR. USE EXISTING WIRING
SUPPLY AIR TEMP	AI	INSTALL NEW SENSOR. USE EXISTING WIRING
RETURN AIR TEMP	AI	INSTALL NEW SENSOR. USE EXISTING WIRING
BLDG STATIC PRESSURE	AI	4-20 mA = MINUS .5 TO PLUS .5 "WC. USE EXISTING DEVICE, WIRING AND CONDUIT
SUPPLY STATIC PRESSURE	AI	4-20 mA = 0-5 "WC. USE EXISTING DEVICE, WIRING AND CONDUIT
MIXED AIR DAMPER (OA, RA & EA DAMPERS)	AO	OUTSIDE, RETURN & EXHAUST DAMPERS. ONE OUTPUT TO 3 ACTUATORS. INSTALL NEW 2-10 VDC ELECTRONIC ACTUATORS ON EXISTING DAMPERS. WILL REQUIRE NEW WIRING AND CONDUIT FROM CONTROLLER TO ACTUATORS.
RETURN FAN VFD	AO	4-20 mA. USE EXISTING DEVICE, WIRING AND CONDUIT
SUPPLY FAN VFD	AO	4-20 mA. USE EXISTING DEVICE, WIRING AND CONDUIT
HEATING & COOLING VALVES	AO	CURRENTLY HEATING = 2-6 PSI, COOLING = 11-15 PSI WITH ONE OUTPUT TO BOTH VALVES. INSTALL NEW ELECTRONIC ACTUATORS ON EXISTING VALVES. WILL REQUIRE NEW WIRING AND CONDUIT FROM CONTROLLER TO VALVES.
FILTER ALARM	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
FREEZE STAT	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
RETURN VFD ALARM	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
SUPPLY VFD ALARM	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
FIRE ALARM PANEL INPUT	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
SUPPLY DUCT HIGH PRESSURE SWITCH	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 1 STATUS	BI	USE EXISTING DEVICE, WIRING AND CONDUIT
AHU FANS START/STOP	BO	STARTS BOTH FANS.USE EXISTING DEVICE, WIRING AND CONDUIT
EXHAUST FAN 1 START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
TOTAL	18	

**Note on heating and cooling valves above - it may be better to have separate outputs to these valves. This can be determined during the walk-through.

CONTROLLER #2 - VAV INTEGRATOR FOR 1ST FLOOR VAV'S - 27 VAV'S HOOKED UP TO AN INTEGRATOR CONTROLLER. THIS WILL REQUIRE 27 NEW VAV CONTROLLERS FOR THE 27 VAV BOXES.

POINT INFO	TYPE	NOTES/COMMENTS

TU 31 - PARALLEL FAN WITH REHEA		
TU 31 RM 125 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 125 TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
TU 32 - NO FAN OR REHEAT		
TU 32 RM 126 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 125 TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
TU 33 - PARALLEL FAN WITH REHEAT		
TU 33 RM 125B FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 125B TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
TU 34 - NO FAN OR REHEAT		
TU 34 RM 123N FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 123N TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
TU 35 - NO FAN OR REHEAT		
TU 35 RM 123S FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 123S TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
TU 36 - PARALLEL FAN WITH REHEAT		
TU 36 RM 132 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 132 TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
TU 38 - NO FAN OR REHEAT		
TU 38 RM 129 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 129 TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
TU 39 - NO FAN OR REHEAT		
TU 39 RM 126C FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 126C TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
TU 41 - PARALLEL FAN WITH REHEAT		
TU 41 RM 127E FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 127E TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT

REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
TU 43 - PARALLEL FAN WITH REHEAT		
TU 43 RM 127B FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 127B TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
TU 44 - NO FAN WITH REHEAT		
TU 44 RM 130A FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 130A TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
TU 45 - NO FAN OR REHEAT		
TU 45 CORRIDOR 104 FLOW	AI	VAV OUTPUT CFM'S
CORRIDOR 104 TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
TU 46 - NO FAN OR REHEAT		
TU 46 RM 131A FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 131A TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
TU 47 - NO FAN OR REHEAT		
TU 47 CORRIDOR 101 FLOW	AI	VAV OUTPUT CFM'S
CORRIDOR 101 TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
TU 48 - PARALLEL FAN WITH REHEAT		
TU 48 RM 105 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 105 TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
TU 49 - PARALLEL FAN WITH REHEAT		
TU 49 RM 106 FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 106 TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.
DAMPER CONTROL	AO	DAMPER ACTUATOR
FAN START/STOP	BO	USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE OPEN SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
REHEAT VLV (FLOATING)	BO	FLOATING CONTROL VALVE CLOSE SIGNAL. USE EXISTING DEVICE, WIRING AND CONDUIT
TU 50 - NO FAN OR REHEAT		
TU 50 RM 106A FLOW, CFM	AI	VAV OUTPUT CFM'S
RM 106A TEMP	AI	INSTALL NEW WALL SENSOR. CONTROLLER ACCESS FROM SENSOR REQUIRED. SEE NOTES BELOW.